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GENERAL NOTES.

BOTANY.

INFLUENCE OF MOISTURE ON VEGETATION.—Carefully conducted experiments (published by Paul Sorauer in the *Botanische Zeitung*, Jan., 1878) with spring barley yielded the following results: In dry air branching was greater than in moist, the mean figures standing at 2.77 and 2.37 respectively; length of leaves was greater in moist air in the ratio of 21.37 to 21.07, but the breadth was less (6.74 to 7.33); a moist atmosphere is more favorable to length of leaf-sheath in the proportion of 9.26 to 8.18, to growth of the principal stem (13.5 to 11.5) and to root development (26.8 to 23.9). It was found that the epidermal cells of the leaves were more numerous and broader, the cells between the stomates shorter, and the stomates themselves shorter in dry air. Also, that leaves developing in a moist atmosphere have comparatively fewer stomates per millimetre of length. The question is worth further working out *apropos* of the relation between the minute structure of organs and their environment.—*Journal of Botany*.

BESSY'S INJURIOUS FUNGI.—This is an essay on the different species of blight or Erysiphei, which live chiefly on the leaves and sometimes on the stems of plants, and attack no less than fifty species of plants of much value in agriculture. The article contains descriptions of all but three species, the descriptions in a few cases being original. Figures of ten species in sufficient detail for their identification accompany the text, which is extracted from the Seventh biennial report of the Iowa Agricultural College.

VARIATIONS IN THE LEAF-SCARS OF SIGILLARIA AND LEPIDODENDRON.—In two papers reprinted from the Annals of the New York Academy of Sciences, Mr. H. L. Fairchild gives some interesting results of studies showing that species of these fossils have been multiplied to too great an extent, from the imperfect nature of the fossils, owing to the great variability of the only characters that can be used by fossil botanists.

REINSCH'S SAPROLEGNIÆ AND PARASITES IN DESMID CELLS.—While this article from Pringsheim's *Yahrbuch* contains observations on certain new and very curious low plants, its chief interest to us are the figures and descriptions of sundry cytodes which have the power of penetrating the interior of desmids, and remind us of certain monera described some years ago by Cienkowski under the name of Vampirella. The author, who has just gone to Key West to study the large one-celled algæ, has lately, during a visit to this country, been engaged in a study of the organisms in the Cochituate water of Boston. He found over a hundred species of minute plants and animals in this excellent drinking water.

BOTANICAL NEWS.—In the London *Journal of Botany* M. A. Hartog describes the floral structure and affinities of *Sapotaceæ*. W. P. Hiem discusses a question of botanical nomenclature. C. C. Babington contributes Notes on *Rubi*, and there are several descriptive papers.

At a late meeting of the Linnæan Society, F. Darwin read a paper on the Nutrition of *Drosera rotundifolia*, in which he showed the advantage gained by the plant being fed with meat, and that the capture by the plant of flies is of similar benefit.

Mr. T. Dyer made a brief communication on the so-called "rain-tree" of Moyobamba, North Peru. This tree promises to excite as much interest amongst residents in hot, dry countries as the supposed anti-malarious properties of the fever tree (*Eucalyptus globulus*) had done amongst the inhabitants of hot dry ones. From information received through Mr. Spence, it seemed probable that the rain tree was *Pithecolobium saman*, and the so-called "rain" the fluid excretions of homopterous insects which fed on the juices of the foliage; other trees, however might become rain trees, and the phenomena were comparable to the production of honey dew from the lime, etc., by the agency of Aphides.

ZOÖLOGY.¹

THE HOMOLOGY OF THE CHEVRON BONES.—The chevron bones of *Reptilia* and *Mammalia* have been regarded as the homologues on the inferior side of the vertebral centrum, of the neural arch on the superior side. However this may be true of fishes, it appears not to be the case in the two classes named, in an exact sense. I have recently determined the fact that the basal portions of the chevron bones are continued throughout the greater part of the vertebral column in the Permian genera *Clepsydrops*, *Metarmasaurus* and *Epicordylus*, forming intervertebral elements to which I have given the name of intercentra. This intercentrum nearly replaces the centrum in *Trimerorachis*, and does so completely in *Rhachitonus*, both Permian genera. In *Cricotus* the intercentra are subequally developed with the centra, producing the curious appearance of two kinds of vertebral bodies alternating with each other, the true centra only bearing neural arches, and the intercentra bearing chevrons in the caudal region. It appears then that the chevron bones are the remnants in the caudal vertebræ of a structure once general throughout the column of air-breathing *Vertebrata*, but which has been replaced in them in the dorsal and lumbar regions, by the true centrum. The free elements of the cervical series of some reptiles are probably the same.—*E. D. Cope*.

¹ The departments of Ornithology and Mammalogy are conducted by Dr. ELLIOTT COUES, U. S. A.